



TÉCNICO  
LISBOA



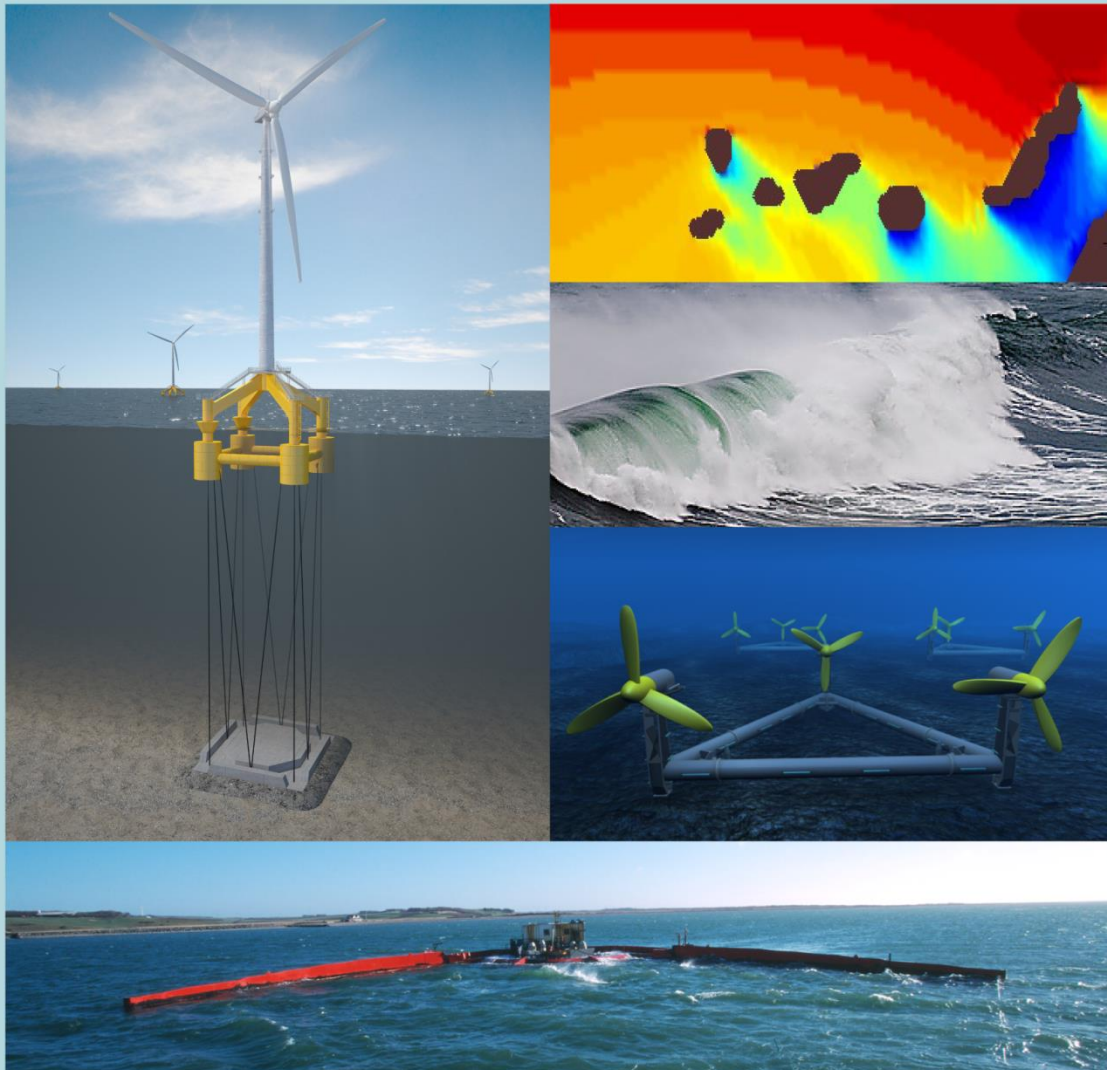
# 2<sup>nd</sup> International Conference on Renewable Energies Offshore

## RENEW 2016

24 - 26 October 2016

IST Congress Centre  
Lisbon, Portugal

## PROGRAMME



# ORGANISATION

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## Conference Chairman

**Carlos Guedes Soares**, IST, Universidade de Lisboa, Portugal

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- Peter Stansby, Manchester University, UK
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- Roger Falconer, Cardiff University, UK
- Simon Neill, Bangor University, UK
- Stephen R. Turnock, University of Southampton, UK
- Tomoki Ikoma, Nihon University, Japan
- Torgeir Moan, NTNU, Norway
- Vallam Sundar, IIT Madras, India
- Vengatesan Venugopal, University of Edinburgh, UK
- Wanan Sheng, Univ. College Cork, Ireland
- Wojciech Popko, Fraunhofer Institute for Wind Energy and Energy System Technology, Germany
- Ye Li, Shanghai Jiao Tong Univ., China
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Barbara Azevedo, IST, Universidade de Lisboa, Portugal

# SCHEDULE AT A GLANCE

<b>Monday, 24 October 2016</b>		
<b>Registration</b> (Hall 01 – from 8h00 onwards)		
<b>Instituto Superior Técnico – Congress Centre</b>		
<b>Opening Session – Auditorium (9h00-10h30)</b>		
<b>Keynote lectures 1</b>		
<i>Coffee-break (10h30-11h00)</i>		
<i>Auditorium (11h00-12h30)</i>		
<b>Keynote lectures 2</b>		
<i>Lunch (12h30-14h00)</i>		
<i>Room 02.1 (14h00-15h30)</i> <b>Wave Energy Devices 1</b>	<i>Room 02.2 (14h00-15h30)</i> <b>Tidal Energy Devices 1</b>	<i>Room 02.3 (14h00-15h30)</i> <b>Resource Assessment 1 – Waves 1</b>
<i>Coffee-break (15h30-16h00)</i>		
<i>Room 02.1 (16h00-17h30)</i> <b>Wave Energy Devices 2</b>	<i>Room 02.2 (16h00-17h30)</i> <b>Tidal Energy Devices 2</b>	<i>Room 02.3 (16h00-17h30)</i> <b>Resource Assessment 2 – Waves 2</b>

<b>Tuesday, 25 October 2016</b>		
<b>Registration</b> (Hall 01 – from 8h00 onwards)		
<i>Room 02.1 (9h00-10h30)</i> <b>Wave Energy Devices 3</b>	<i>Room 02.2 (9h00-10h30)</i> <b>Tidal Energy Devices 3</b>	<i>Room 02.3 (9h00-10h30)</i> <b>Resource Assessment 3 –Wind</b>
<i>Coffee-break (10h30-11h00)</i>		
<i>Room 02.1 (11h00-12h30)</i> <b>Wave Energy Devices 4</b>	<i>Room 02.2 (11h00-12h30)</i> <b>Ocean Energy Devices</b>	<i>Room 02.3 (11h00-12h30)</i> <b>Resource Assessment 4 – Tidal</b>
<i>Lunch (12h30-14h00)</i>		
<i>Room 02.1 (14h00-15h30)</i> <b>Wave Energy Devices 5 – OWC 1</b>	<i>Room 02.2 (14h00-15h30)</i> <b>Wind Energy Devices 1</b>	<i>Room 02.3 (14h00-15h30)</i> <b>Risk &amp; Reliability 1</b>
<i>Coffee-break (15h30-16h00)</i>		
<i>Room 02.1 16h00-17h30)</i> <b>Wave Energy Devices 5 – OWC 2</b>	<i>Room 02.2 16h00-17h30)</i> <b>Wind Energy Devices 2</b>	<i>Room 02.3 (16h00-17h30)</i> <b>Risk &amp; Reliability 2</b>
<b>20:00 h - Conference Dinner</b>		

<b>Wednesday, 26 October 2016</b>		
<b>Registration</b> (Hall 01 – from 8h00 onwards)		
<i>Room 02.1 (9h00-10h30)</i> <b>Wave Energy Devices 6 – Arrays</b>	<i>Room 02.2 (9h00-10h30)</i> <b>Multiuse Solutions</b>	<i>Room 02.3 (9h00-10h30)</i> <b>Maintenance Planning</b>
<i>Coffee-break (10h30-11h00)</i>		
<i>Room 02.1 (11h00-12h30)</i> <b>Wave Energy Devices 7 – Control</b>	<i>Room 02.2 (11h00-12h30)</i> <b>Mooring Systems</b>	<i>Room 02.3 (11h00-12h30)</i> <b>Economic Assessments 1</b>
<i>Lunch (12h30-14h00)</i>		
<i>Room 02.1 (14h00-15h30)</i> <b>Wave Energy Devices 8 – PTO</b>	<i>Room 02.2 (14h00-15h30)</i> <b>Environmental Monitoring</b>	<i>Room 02.3 (14h00-15h30)</i> <b>Economic Assessments 2</b>
<i>Coffee-break (15h30-16h00)</i>		
<b>Closing</b>		

# SESSIONS INDEX – alphabetical order

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- **Economic Assessments 1** – 26<sup>th</sup> October 2016 – *Room 02.3 (11h00-12h30)*
- **Economic Assessments 2** – 26<sup>th</sup> October 2016 – *Room 02.3 (14h00-15h30)*
- **Environmental Monitoring** – 26<sup>th</sup> October 2016 – *Room 02.2 (14h00-15h30)*
- **Keynote Lectures 1** – 24<sup>th</sup> October 2016 - *Auditorium (9h00-10h30)*
- **Keynote Lectures 2** – 24<sup>th</sup> October 2016 – *Auditorium (11h00-12h30)*
- **Maintenance Planning** – 26<sup>th</sup> October 2016 – *Room 02.3 (9h00-10h30)*
- **Mooring Systems** – 26<sup>th</sup> October 2016 – *Room 02.2 (11h00-12h30)*
- **Multiuse Solutions** – 26<sup>th</sup> October 2016 – *Room 02.2 (9h00-10h30)*
- **Ocean Energy Devices** – 25<sup>th</sup> October 2016 – *Room 02.2 (11h00-12h30)*
- **Resource Assessment 1 – Waves 1** – 24<sup>th</sup> October 2016 – *Room 02.3 (14h00-15h30)*
- **Resource Assessment 2 – Waves 2** – 24<sup>th</sup> October 2016 – *Room 02.3 (16h00-17h30)*
- **Resource Assessment 3 – Wind** – 25<sup>th</sup> October 2016 – *Room 02.3 (9h00-10h30)*
- **Resource Assessment 4 – Tidal** – 25<sup>th</sup> October 2016 – *Room 02.3 (11h00-12h30)*
- **Risk & Reliability 1** – 25<sup>th</sup> October 2016 – *Room 02.3 (14h00-15h30)*
- **Risk & Reliability 2** – 25<sup>th</sup> October 2016 – *Room 02.3 (16h00-17h30)*
- **Tidal Energy Devices 1** – 24<sup>th</sup> October 2016 – *Room 02.2 (14h00-15h30)*
- **Tidal Energy Devices 2** – 24<sup>th</sup> October 2016 – *Room 02.2 (16h00-17h30)*
- **Tidal Energy Devices 3** – 25<sup>th</sup> October 2016 – *Room 02.2 (9h00-10h30)*
- **Wave Energy Devices 1** – 24<sup>th</sup> October 2016 – *Room 02.1 (14h00-15h30)*
- **Wave Energy Devices 2** – 24<sup>th</sup> October 2016 – *Room 02.1 (16h00-17h30)*
- **Wave Energy Devices 3** – 25<sup>th</sup> October 2016 – *Room 02.1 (9h00-10h30)*
- **Wave Energy Devices 4** – 25<sup>th</sup> October 2016 – *Room 02.1 (11h00-12h30)*
- **Wave Energy Devices 5 – OWC 1** – 25<sup>th</sup> October 2016 – *Room 02.1 (14h00-15h30)*
- **Wave Energy Devices 5 – OWC 2** – 25<sup>th</sup> October 2016 – *Room 02.1 16h00-17h30)*
- **Wave Energy Devices 6 – Arrays** – 26<sup>th</sup> October 2016 – *Room 02.1 (9h00-10h30)*
- **Wave Energy Devices 7 – Control** – 26<sup>th</sup> October 2016 – *Room 02.1 (11h00-12h30)*
- **Wave Energy Devices 8 – PTO** – 26<sup>th</sup> October 2016 – *Room 02.1 (14h00-15h30)*
- **Wind Energy Devices 1** – 25<sup>th</sup> October 2016 – *Room 02.2 (14h00-15h30)*
- **Wind Energy Devices 2** – 25<sup>th</sup> October 2016 – *Room 02.2 16h00-17h30)*

# DETAILED PROGRAMME

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## Monday, 24<sup>th</sup> October 2016

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**Monday, from 9:00 to 10:30 h**

### KEYNOTE LECTURES 1

Auditorium

Chairman: Carlos Guedes Soares

The development of wave and tidal energy devices  
D. Ingram, University of Edinburgh, UK

Structural health monitoring in offshore wind technology  
C. Michailides, Liverpool John Moore University, UK

**Monday, from 11:00 h to 12:30 h**

### KEYNOTE LECTURES 2

Auditorium

Chairman: Carlos Guedes Soares

Modelling simulation and control of wave energy devices  
J. Ringwood, Maynooth University, Ireland

Importance of mooring line dynamics for MRE deployments  
L. Johanning, University of Exeter, UK

Predicting unsteady behaviour of tidal turbine blades using CFD  
S. R. Turnock, University of Southampton, UK

**Monday, from 14:00 h to 15:30 h**

### WAVE ENERGY DEVICES 1

Room 02.1

Chairman: David Ingram

Energy capture optimization for an adaptive wave energy converter  
J.J. Barradas-Berglind, H. Meijer, M. van Rooij, S. Clemente-Pinol, B. Galvan-Garcia, W.A. Prins, A.I. Vakis and B. Jayawardhana

Biomimetic marine energy devices in waves and sheared currents  
K.A. Belibassakis, E.S. Filippas and Th.P. Gerostathis

Design optimization of a multifunctional wave energy device  
G. Palma, P. Contestabile, S. M. Formentin, D. Vicinanza and B. Zanuttigh

Systems engineering applied to the development of a wave energy farm  
D. Bull, J. Roberts, R. Malins, J. Weber, K. Dykes, K. Neilson, C. Bittencourt, A. Babarit, R. Costello and B. Kennedy

**Monday, from 14:00 h to 15:30 h**

### TIDAL ENERGY DEVICES 1

Room 02.2

Chairman: Stephen Turnock

Operation modelling of tidal energy lagoon proposals within the Bristol Channel and Severn Estuary  
A. Angeloudis and R. A. Falconer

Assessing the performance of tidal turbines arrays using an analytical method: application to the Alderney Race (France)  
O. A. Lo Brutto, J. Thiébot, S. S. Guillou, H. Gualous and V.T. Nguyen

Load alleviation technology for extending life in tidal turbines  
A. M. Young, J. R. Farman and R. J. Miller

Experimental investigation of the turbulent flow behind a horizontal axis tidal current turbine  
C. Del Frate, F. Di Felice, F. Alves Pereira, G.P. Romano, D. Dhomé and J.C. Allo

**Monday, from 14:00 h to 15:30 h**

### RESOURCE ASSESSMENT 1 – WAVES 1

Room 02.3

Chairman: John Ringwood

Development of a numerical modelling tool for combined near field and far field wave transformations using a coupling of potential flow solvers  
T. Verbrugghe, P. Troch, A. Kortenhaus, V. Stratigaki and A.P. Engsig-Karup

Assessing the wave energy potential in the Mediterranean Sea using WAVEWATCH III  
D. Pelli, L. Cappietti and H. Oumeraci

Wave energy potential assessment along the west coast of Fuerteventura  
G. Rodriguez, G. Clarindo and C. Guedes Soares

On the peak period distributions conditioned on significant wave heights of Aguçadoura offshore site off Portugal.  
G. Muraleedharan, C. Lucas, D. Martins and C. Guedes Soares

**Monday, from 16:00 h to 17:30 h**

**WAVE ENERGY DEVICES 2**

Room 02.1

Chairman: Lars Johanning

Numerical simulation of a single floating point absorber wave energy converter using OpenFOAM®

B. Devolder, P. Rauwoens and P. Troch

Numerical and experimental studies of water impact on conical point absorber buoys

Hui Li, Hong-Zhou He, Shao-Hui Yang, Jun Zhang, Jie Liang and Wanan Sheng

Practical performances of MPC for wave energy converters

F. Ferri, A. Tetu and J. Hals

Study of the influence of design parameters on the structural behavior of a point absorber wave energy converter using a finite element approach

C. Malça, R. Felismina and P. Beirão

**Monday, from 16:00 h to 17:30 h**

**TIDAL ENERGY DEVICES 2**

Room 02.2

Chairman: Stephen Turnock

Design and operation of a 1MW four turbine tidal fence

F. Heathcote, C. R. Vogel and R. H. J. Willden

Parametric analysis of a tidal current turbine for remote islands of India using CFD techniques

T. Karthikeyan, K. Ezhilsabreesh, Abdus Samad, N. Venkatesan and E.J Avital

PD control with buoyancy compensation for automatic emersion maneuvers of first generation TEC

J.A. Somolinos, M.P. Portilla, E. Segura, M. Espin, L.R. Nuñez and A. Lopéz

Predictions of the dynamic Performance of Horizontal Axis Marine Current Turbines under the effect of different impact scenarios

M. Nachtane, M. Tarfaoui, D. Saifaoui, A. El Moumen and M. Ait Mohamed

**Monday, from 16:00 h to 17:30 h**

**RESOURCE ASSESSMENT 2– WAVE 2**

Room 02.3

Chairman: Lorenzo Cappiotti

Assessing the utility and effectiveness of the IEC standards for wave energy resource characterisation

V. Ramos and J. V. Ringwood

Wave energy resource assessment from a 12-year hindcast, for Pembrokeshire, Wales

A. Rute Bento, P. Martinho and C. Guedes Soares

A hindcast study on wave energy variability and trends in Le Croisic, France

M. Gonçalves, P. Martinho and C. Guedes Soares.

Trends in the available wave power at the Portuguese pilot zone

D. Silva, P. Martinho and C. Guedes Soares

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## Tuesday, 25<sup>th</sup> October 2016

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**Tuesday, from 9:00h to 10:30 h**

**WAVE ENERGY DEVICES 3**

Room 02.1

Chairman: António Falcão

Wave energy generation with thermo-chemical storage: getting a uniform injection into the grid

M. C. Rodriguez-Hidalgo, A. López, A. de Bonis, P. A. Rodriguez-Aumente and A. Lecuona

Wave energy converters: fix- or self-referenced?

W. Sheng and T. Lewis

Modelling of the 3-float WEC M4 with nonlinear PTO options and longer bow beam

P. Stansby, E. Carpintero Moreno and T. Stallard

**Tuesday, from 9:00h to 10:30 h**

**TIDAL ENERGY DEVICES 3**

Room 02.2

Chairman: Luis Ramon Nuñez

Numerical modelling with porous media for current field around HAMT array

Y. Watanabe, T. Ikoma, K. Masuda and H. Eto

Computational analysis of blockage designed tidal turbine rotors

A. Wimshurst and R. H. J. Willden

Assessing the importance of including waves in simulations of tidal stream turbine impacts

I. Fairley and H. Karunaratna

Assessing the turbulence in a tidal estuary and the effect of turbulence on marine current turbine performance

M. Thiébaud, A. Sentchev, F.G. Schmitt and T. Le Kien

**Tuesday, from 9:00h to 10:30 h**  
**RESOURCE ASSESSMENT 3 – WIND**  
Room 02.3

Chairman: Constantine Michailides

A methodology for the power performance assessment of floating offshore wind turbines

A. Couto, P. Justino, J. Silva and A. Estanqueiro

Application of reanalysis data for offshore wind power potential assessment off the west coast of India  
G. Nagababu, N. K. Naidu, S. S. Kachhwaha and V. Savsani

Assessing climate change in offshore wind power  
M. Bernardino and C. Guedes Soares

Regional frequency analysis of wind speed on the coast of Portugal

R. M. Campos and C. Guedes Soares

**Tuesday, from 11:00h to 12:30 h**  
**WAVE ENERGY DEVICES 4**  
Room 02.1

Chairman: Jens Peter Kofoed

Performance of the three-float wave energy converter M4 in regular and random waves

L. Sun, J. Zang, P. Stansby and E. Carpintero Moreno

Hydrodynamic analysis and optimization of a wave activated device

Sheng Xu, J.M. Rodrigues and C. Guedes Soares

Flap type wave energy converter modelling into a time-dependent mild-slope equation model

N. Tomey, J. Murphy, T. Lewis, P. Troch, A. Babarit, and G. Thomas

Evaluation of the expected power output of a wave energy converters in the north of the Portuguese nearshore

D. Silva, E. Rusu and C. Guedes Soares

**Tuesday, from 11:00h to 12:30 h**  
**OCEAN ENERGY DEVICES**  
Room 02.2

Chairman: Tomoki Ikoma

Performance assessment for high temperature OTEC plant  
H. S. Lee, S. T. Lim, J. H. Moon and H. J. Kim

Conceptual design of a floating plant of fresh water production by using the ocean thermal energy as power source

L.R. Nuñez Rivas, J. A. Somolinos Sanchez, L. Blay Muñoz and M. Perez de la Portilla

The performance comparison of the OTEC cycles with an ejector

J. H. Moon, H. S. Lee, H. J. Kim and J. I. Yoon

Analytical and numerical investigation of a sea water desalination plant with integration of renewable marine energy (Jorf Alsafar OCP Morocco)

D. Saifaoui, M. Nachtane and M. Tarfaoui

**Tuesday, from 11:00h to 12:30 h**  
**RESOURCE ASSESSMENT 4 – TIDAL**  
Room 02.3

Chairman: Gregorio Iglesias

Exploring the utility and effectiveness of tidal stream energy resource assessment and characterisation standards: a case study

V. Ramos and J. V. Ringwood

Tidal energy resource characterisation in the Dover Strait by using VHF radar and ADCP measurements

M. Thiébaud and A. Sentchev

Evaluation of the Aguçadoura pilot area as an ocean current turbine site with ROMS modeled ocean current data

T. Costa, L. T. Pereira, M. Marta-Almeida and C. Guedes Soares

**Tuesday, from 14:00h to 15:30 h**  
**WAVE ENERGY DEVICES 5 – OWC 1**  
Room 02.1

Chairman: Wanan Sheng

The first worldwide application at full-scale of the REWEC3 device in the Port of Civitavecchia: initial energetic performances

F. Arena, A. Romolo, G. Malara, V. Fiamma and V. Laface

Performance of oscillating water column wave energy converters integrated in breakwater

V. Anvesh, D. Karmakar and C. Guedes Soares

A CFD analysis of the wave field in front of a U-OWC breakwater

P. Filianoti and L. Gurnari

Turbine choice and optimization for a shoreline OWC wave energy plant

A.F.O. Falcão, J. C. C. Henriques and L. M. C. Gato

**Tuesday, from 14:00h to 15:30 h**  
**WIND ENERGY DEVICES 1**  
Room 02.2

Chairman: Jimmy Murphy

Pre-Design of a TLP steel-concrete composite substructure for a 6 MW wind turbine as a way to essential cost-reduction  
F. Adam, U. Ritschel, E. Plumridge and J. Großmann

Open-sea 1:30 scale tests on a spar-type offshore wind turbine in parked conditions: progress and future work  
C. Ruzzo, V. Fiamma, G. Failla, F. Arena, M. Collu and V. Nava

Aero-elastic analysis and classical flutter of a multi-megawatt slender bladed horizontal-axis wind turbine  
M. A. Sayed, T. Lutz, E. Krämer and F. Borisade

Generic supervisory system for the automation of model building, and iterative simulations with the wind turbine simulation tool FAST  
E. Uzunoglu and C. Guedes Soares

**Tuesday, from 14:00h to 15:30 h**

**RISK & RELIABILITY 1**  
Room 02.3

Chairman: Benson Waldron

A novel reliability-based simulation tool for offshore renewable technologies  
G. Rinaldi, L. Johanning, P. R. Thies and R. T. Walker

Evaluating a novel approach to reliability based decision support for offshore wind turbine installation  
T. Gintautas and J. D. Sorensen

Reliability assessment of tidal stream energy: significance for large-scale deployment in the UK  
F. Khalid, P. R. Thies and L. Johanning

**Tuesday, from 16:00h to 17:30 h**

**WAVE ENERGY DEVICES 5 – OWC 2**  
Room 02.1

Chairman: Felice Arena

Site-specific optimization of an OWC wave energy converter in a Mediterranean area  
I. Simonetti, I. Crema, L. Cappietti, H. El Safti and H. Oumeraci

Parametric study of blade shape to enhance performance of a turbine used in OWC  
K. Ezhilsabareesh and A. Samad

Mathematical modeling of a non-axisymmetric floating OWC  
P.A.P. Justino

Integration of breakthrough concepts into the OWC spar buoy  
B. Teillant, Y. Debruyne, A. Sarmiento, R. Gomes, L. M. C. Gato, M. Fontana, M. Philippe and A. Combourieu

**Tuesday, from 16:00h to 17:30 h**

**WIND ENERGY DEVICES 2**  
Room 02.2

Chairman: Frank Adam

Performance of barge-type floaters for floating wind turbine  
K. G. Vijay, D. Karmakar, E. Uzunoglu and C. Guedes Soares

Modular jacket offshore wind turbine support structure for the North Portuguese coastal zone  
B. Yeter, Y. Garbatov and C. Guedes Soares

Design and automation of a pile test facility for offshore foundations and first experimental results  
E. Weichhold, F. Dahlhaus, F. Adam, T. Meier and J. Großmann

Drive-train condition monitoring for offshore wind and tidal turbines  
S. Roshanmanesh, F. Hayati, V. Kappatos, F. P. Garcia Marquez, A. Pliego Marugán, C. Q. Gómez Muñoz, C. Selcuk, T.-H. Gan and M. Papaelias

**Tuesday, from 16:00h to 17:30 h**

**RISK & RELIABILITY 2**  
Room 02.3

Chairman: Phillipp Thies

Uncertainty associated with the estimation of drag and inertia coefficients of fixed vertical cylinders  
K. Raed, E. Uzunoglu and C. Guedes Soares

Knowledge uncertainty reduction in risk assessment of offshore energy structures  
U. Okoro, A. Kolios and L. Wang

On the model uncertainty of wave induced responses of a floating semisubmersible wind system  
E. Uzunoglu and C. Guedes Soares



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## Wednesday, 26<sup>th</sup> October 2016

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**Wednesday, from 9:00h to 10:30 h**

### **WAVE ENERGY DEVICES 6 - ARRAYS** Room 02.1

Chairman: Peter Stansby

A 3D-BEM coupled-mode method for WEC arrays in variable bathymetry  
K.A. Belibassakis, Th.P. Gerostathis and G.A. Athanassoulis

Time domain analysis of array interaction and different heading angles for wave energy converter arrays  
F. Kara

A critical discussion about optimisation approaches for ocean energy array design  
V. Nava, M.B.R. Topper, P. Ruiz-Minguela, A. de Andrés and H. Jeffrey

Influence of a parabolic reflector wall on the sea state in an array of point absorber wave energy converters  
R.J. van der Wiel, J. Kramer, P.P.D. van der Ven, M.J.A. Borsboom and M.P.C. de Jong

**Wednesday, from 9:00h to 10:30 h**

### **MULTIUSE SOLUTIONS** Room 02.2

Chairman: Debabrata Karmakar

Energy yield for co-located offshore wind and tidal stream turbines  
D.R. Lande-Sudall, T. Stallard and P. K. Stansby

Enhancing marine energy competitiveness: economic assessment of a co-located wave-wind energy farm  
S. Astariz and G. Iglesias

Design of a TLP floating structure concept for combined wind and wave energy exploitation  
T.P. Mazarakos, D.N. Konispoliatis and S.A. Mavrakos

**Wednesday, from 9:00h to 10:30 h**

### **MAINTENANCE PLANNING** Room 02.3

Chairman: Phillip Thies

Operations and maintenance planning for community-scale, off-grid wave energy devices  
A. Gray, D. Findlay and L. Johanning

Towards improved forecasting for offshore wind turbine O&M transfer  
P.R. Mills, B. Stephen, D. McMillan and I. Lazakis

Development of innovative coatings for marine renewable energy  
A. Rodriguez, B. Santos, V. Gonzalez de Lena, A. Yedra and C. Manteca

Modelling the propagation of underwater acoustic emissions for condition monitoring of marine renewable energy  
J. Walsh, I. Bashir, P. R. Thies, L. Johanning and Ph. Blondel

**Wednesday, from 11:00h to 12:30 h**

### **WAVE ENERGY DEVICES 7 - CONTROL** Room 02.1

Chairman: John Ringwood

Control and instrumentation topologies for an integrated wave energy array  
C. J. Kenny, D. Findlay, I. Lazakis, J. Shek and P.R. Thies

Tuning a linear quadratic regulator for point absorber wave energy converters  
D. Valério, P. Beirão, G. Vissio, G. Bracco and G. Mattiazzo

ISWEC control tuning: lessons learned  
G. Vissio, G. Bracco, E. Giorcelli, G. Mattiazzo, D. Valério and P. Beirão

Improving seabed cable plough performance for offshore renewable energy  
S. Robinson, M.J. Brown, A.J. Brennan, M. Cortis, C.E. Augarde and W.M. Coombs

**Wednesday, from 11:00h to 12:30 h**

### **MOORING SYSTEMS** Room 02.2

Chairman: Jonas Ringsberg

Mooring cable simulations with snap load capturing for wave energy applications  
J. Palm, C. Eskilsson and L. Bergdahl

Experimental testing of moorings for large floating wave energy converters  
J.B. Thomsen, F. Ferri and J.P. Kofoed

The influence of biofouling on power capture and the fatigue life of mooring lines and power cables used in wave energy converters  
S.-H. Yang, J. W. Ringsberg and E. Johnson

The dynamic effects of marine growth on a tension moored floating wind turbine  
C. Wright, J. Murphy and V. Pakrashi

**Wednesday, from 11:00h to 12:30 h**

**ECONOMIC ASSESSMENTS 1**

Room 02.3

Chairman: Lorenzo Cappiotti

Revenue optimization for the ocean grazer wave energy converter through storage utilization  
H.T. Dijkstra, J.J. Barradas-Berglind, H. Meijer, M. van Rooij, W.A. Prins, A.I. Vakis and B. Jayawardhana

Mapped economic performance of wave energy  
C. Frost, D. Findlay, L. Johanning, E. Macpherson and P. Sayer

Capital costs in tidal stream energy projects: a site-specific approach  
A. Vazquez and G. Iglesias

The potential offshore energy cluster in Portugal  
A. Pego, M. Marques, R. Salvador, A. Monteiro and C. Guedes Soares

**Wednesday, from 14:00h to 15:30 h**

**WAVE ENERGY DEVICES 8 - PTO**

Room 02.1

Chairman: Vincenzo Nava

Concept of reciprocating oil-hydraulic cylinders for increased wave power harvesting  
J. F. Gaspar, A. Sinha, M. Calvário and C. Guedes Soares

Best practices for the use of electrical test infrastructures to validate control strategies: a case study in wave energy conversion  
F.-X. Fay, E. Robles, J.C. H. Henriques and M. Marcos

Optimization of an oil-hydraulic Power Take-Off system based on an adaptable mechanism interface  
M. Calvário; J. Gaspar; A. Sinha and C. Guedes Soares

**Wednesday, from 14:00h to 15:30 h**

**ENVIRONMENTAL MONITORING**

Room 02.2

Chairman: Luis Ramon Nuñez

Evaluation of offshore wind power potential of India by combining satellite and moored buoy data  
N. K. Naidu, G. Nagababu, S. S. Kachhwaha and V. Savsani

Development of an autonomous offshore monitoring system  
D.B.S. Lopes and H. Sarmento

High resolution monitoring for marine renewable energy  
L. Ren and M. Hartnett

**Wednesday, from 14:00h to 15:30 h**

**ECONOMIC ASSESSMENTS 2**

Room 02.3

Chairman: Gregorio Iglesias

The economic potential value of offshore wind near Berlengas  
A. Faria Lopes

Preliminary cost assessment of an offshore floating wind farm installation on the Galician Coast  
H. Diaz, J. M. Rodriguez and C. Guedes Soares

Economic feasibility of floating offshore wave farms in Galicia, Spain  
L. Castro-Santos and C. Guedes Soares

# ADDITIONAL INFORMATION

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## WIFI:

Free WIFI access at IST Campus during RENEW 2016 will be available to all participants:

Network: *Eudoram-guest*

- Username: RENEW
- Password: PMryCg

## LUNCHES

During the RENEW2016 Conference, lunches for the participants will be served in the “Vasco da Gama” Restaurant at the Hotel Holiday Inn, which is within a 2-minute walk from the Conference location (please see the map on the last page to find the location of the hotel).

Adress:

Hotel Holiday Inn

Av. Antonio Jose de Almeida, 28-A

1000-044 Lisboa

Tel: +351 21 004 4000

Fax: +351-21 793 8374

Web: <http://www.holiday-inn.com/lisbonprt>

## LOCATION OF THE CONFERENCE DINNER:



Rua do Guarda Jóias, nº 44

1300-294 Lisboa

[www.pateoalfacinha.com](http://www.pateoalfacinha.com)

tel: +351 213 642 171

There will be a bus to take the delegates from IST to the conference dinner and return to the Hotels

# CONFERENCE VENUE

The 2<sup>ND</sup> International Conference on Renewable Energies Offshore will be held at the Congress Centre of Instituto Superior Técnico at the Alameda Campus.

MAP with the location of the Congress Centre of IST:



The **congress centre** ★ has one auditorium and 3 meeting rooms that will be used during RENEW2016 for the parallel sessions.



**Location of Holiday Inn Hotel** (Lunches for the delegates)

## Important Contacts

Congress Centre	CENTEC	Other CONTACTS
Centro de Congressos Instituto Superior Técnico Avenida Rovisco Pais Lisboa 1049 – 001 Tel: +351 218 418 069	Centre for Marine Technology and Engineering Instituto Superior Técnico Avenida Rovisco Pais Lisboa 1049 – 001 Tel: +351 218 417 468	EMERGENCY NUMBER – 112